

Economic Significance of the Great Salt Lake to the State of Utah

Executive Summary of 1/26/12 Report prepared by Bioeconomics, Inc. for The Great Salt Lake Council.

Background Information



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The Great Salt Lake (GSL) is the largest terminal lake in North America. It is both an important natural resource and an important economic resource to the region and to the State of Utah. In addition to the lake's unique ecosystem and rich biological diversity, the specific

characteristics of the lake have given rise to a number of large industrial operations, including extraction of salts and minerals, and support a unique commercial use in the annual aquaculture harvest of brine shrimp eggs. Together these industrial and aquaculture uses of the lake ecosystem, along with significant levels of recreational use of the lake, constitute a large base of employment and income for the area and the state.

Great Salt Lake Economic Activity

This report has brought together in one document both newly collected and previously published data on the economic significance of the Great Salt Lake and its surrounding ecosystem to the economy of the state of Utah. Economic significance is a measure of the amount of total state economic activity (output, income, and employment) tied to uses of the lake ecosystem.

Economic uses of the Great Salt Lake and its ecosystem can be categorized into five general groups (Figure 1). Each of these groups is responsible for economic benefits to the State of Utah. Lake harvest is the aquaculture harvest of brine shrimp eggs from the unique lake environment. The minerals group includes the extraction, processing, or production of salt, magnesium chloride, magnesium metal, titanium sponge, and sulfate of potash. The recreation group includes hunting, bird watching, boating, swimming, and general recreation. Waste assimilation refers to the use of the lake to dilute and process

effluent from both public sewage treatment plants, as well as industrial uses. Finally, "adjacent ecosystem services" refers to a mix of uses of Utah state land leases that are not captured within the other groups.

Regional Economic Significance of the Great Salt Lake Ecosystem

This report presents two different measures of economic contribution by the Great Salt Lake Ecosystem. First is a

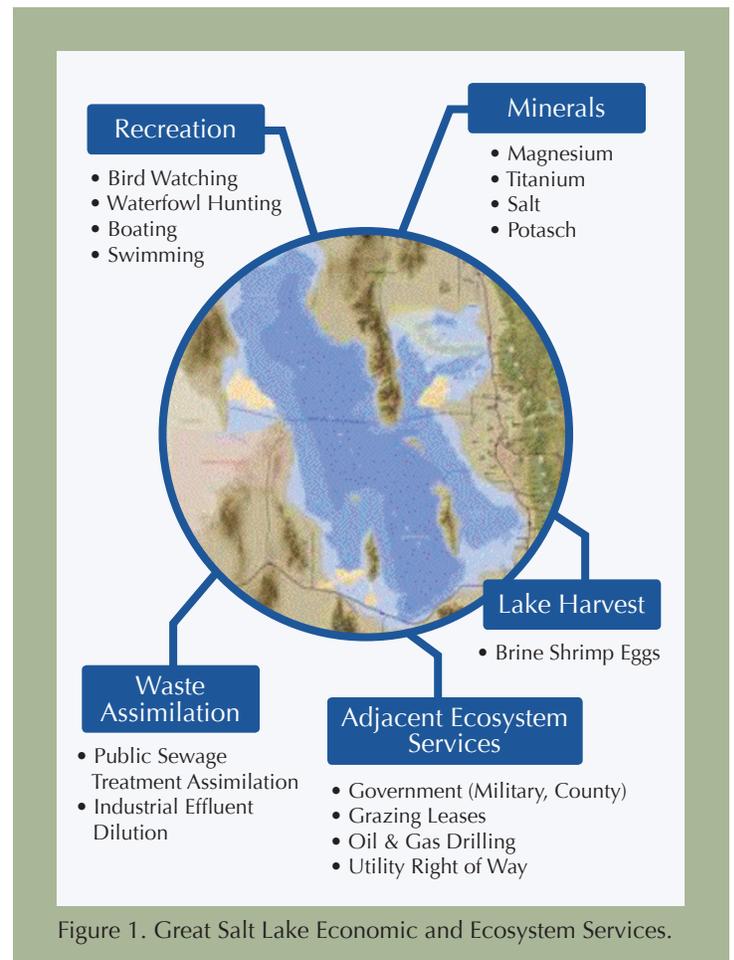


Figure 1. Great Salt Lake Economic and Ecosystem Services.

Statistic	Direct Economic Effect	Indirect Economic Effect	Induced Economic Effect	Total Economic Effect
Total Economic Output (millions of 2010 \$)				
Recreation Sector	74.6	27.8	33.5	135.8
Industrial Sector (Mineral)	685.2	217.7	227.9	1,130.8
Aquaculture (brine shrimp eggs)	33.9	8.0	14.8	56.7
TOTAL ALL SECTORS				1,323.3
Total Labor Income (millions of 2010 \$)				
Recreation Sector	25.7	9.2	10.8	45.7
Industrial Sector	168.3	67.1	73.7	309.2
Aquaculture (brine shrimp eggs)	12.3	3.2	4.8	20.2
TOTAL ALL SECTORS				375.1
Total Employment (Full and Part-time Jobs)				
Recreation Sector	1,217	236	310	1,764
Industrial Sector	1,967	1,288	2,112	5,368
Aquaculture (brine shrimp eggs)	373	63	138	574
TOTAL ALL SECTORS				7,706

Table 1. Total GSL Economic Output, Income, and Employment.

“regional economic significance” estimate of the contribution of the lake’s industry, aquaculture, and recreational use to the total economic output, employment and labor income of the State of Utah. Table 1 shows this total estimated regional economic significance. Overall, these uses account for an estimated \$1.32 billion in total economic output, \$375 in total labor income, and 7,706 full and part-time jobs annually within Utah (Table 1).

Net Economic Value of the Great Salt Lake Ecosystem

A second measure of economic value can be described as the “net economic value” of activities tied to uses of the lake ecosystem. These “net economic values” represent value that is not traded in traditional marketplaces. For example, the net economic value associated with recreational use of the lake is a measure of what recreational users are willing to pay to use the ecosystem (for hunting or general recreation) if they were asked to (such as through an entry fee).

A significant additional source of net economic value to the state is associated with discharge from publicly owned treatment works (POTW) into the lake system. The unique characteristics of the lake environment process this nutrient discharge while a typical Western freshwater riparian system would likely require the POTWs to meet higher, more expensive treatment standards prior to discharge. This avoided cost of water treatment represents real value to the state and users of the POTWs. For recreational and POTW use of the lake ecosystem, it is estimated that the total net economic value of GSL is in the range of \$46 million to \$95 million annually. These figures include General Recreation at \$26.3 million, Waterfowl at \$9.6 million, Publicly-owned Treatment Works Discharges ranging from \$10.3 to \$58.9 million, and other Industrial/Municipal Discharges not estimated but positive.

Passive Use Values of the Great Salt Lake Ecosystem

In addition to the contribution of economic activity tied to the Great Salt Lake in terms of output, income, jobs, and net economic value, the lake ecosystem likely also has tremendous value both within the state and nationwide for its unique contribution to bird habitat as well as its other geologic and ecological characteristics. These values, referred to as “passive

use values,” are not tied to direct economic uses of the lake, but are a measure of the value people place on simply preserving the resource. Studies of passive use values associated with protection of other unique resources in the Western U.S., such as Mono Lake in California, have shown these resources to have very high value to households. Any “passive use values” associated with the Great Salt Lake Ecosystem would be in addition to the regional economic significance and net economic values presented above. No passive use valuation studies have been done for the Great Salt Lake Ecosystem. However, using the inflation-adjusted value per household estimated for Mono Lake (Loomis 1989) of \$125, and the approximately 830,000 Utah households, suggests the passive use value associated with preservation of the Great Salt Lake Ecosystem could be in the range of \$100 million annually for Utah households.



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Summary

In addition to its well known natural and ecological values, the Great Salt Lake supports industrial and aquaculture use, significant levels of recreational use, and provides a large base of employment and income for the State of Utah. Using a variety of metrics, its annual economic value is estimated as follows:*

Total Economic Output	\$1,323,000,000
Total Labor Income	\$ 375,100,000
Total Employment	7,706 (jobs)
Net Economic Value	\$46.2 to \$94.8 M
Passive Use Value	\$100,000,000

*Total Economic Output, Labor Income and Employment = Direct, Indirect & Induced Economic Effects in actual dollars spent

*Net Economic Value = potential unrealized economic benefits of ecological services

*Passive Use Value = projected conservation value based on studies of Mono Lake CA